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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2009*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1.   Claims 8-12 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

        With respect to claim 8, the claim is indefinite insofar as the limitation "*forming* both an energy resolving detector element and a scintillator detector element on a single detector device" is directed to a method of manufacturing whereas the remaining limitations of the claim are directed to a method of reconstruction. Claims 9-12 and 16 are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   Claims 13 and 17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

With respect to claim 13, the claim is drawn to a computer program. A computer

programs per se are an abstract set of instructions. Therefore, a computer program is not a

physical thing (product) nor a process as they are not "acts" being performed. As such, these

claims are not directed to one of the statutory categories of the invention (See MPEP 2106.01),

but directed to nonstatutory functional descriptive material.

It is noted that a computer readable medium or other structure embodied with a computer

program, which would permit the functionality of the program to be realized, would be directed

to a product and be within a statutory category of invention, so long as the computer readable

medium is not disclosed as non-statutory matter per se (signals or carrier waves). Although claim

13 states that "the computer program stored on a computer readable medium", the claim is

directed to "A computer program …" where the computer readable medium is considered to be

an intended use of the computer program. The claim must be directed to "A computer readable

medium …". Claim 17 is rejected by virtue of its dependency.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   Claims 1-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Harding (US 6,470,067) in view of Harding et al. (US 4,754,469) and Van Stevendaal et al.

("Filtered Back-Projection Reconstruction Technique for Coherent-Scatter Computed

Tomography", 15 May 2003, Medical Imaging 2003: Image Processing, SPIE Volume 5032,

pages 1810-1819).

With respect to claim 1, Harding ('067) discloses a data processing device (10) for

performing a reconstruction of Coherent Scatter Computer Tomography (CSCT) data (Title and

Abstract), the data processing device comprising:

a detector (16) comprising both a detector element offset from the primary radiation path

(161) and a detector element positioned along the primary radiation path (160) where detector

element positioned offset from a primary radiation path is energy resolving (Col. 4, lines 5-10

and 35-38), the energy resolving detector element is configured to acquire a spectrum (Col. 1,

lines 27-38, Col. 4, lines 17-24 and Col. 4, lines 30-38), and where both the detector element

offset from the primary radiation path (161) and a detector element positioned along the primary

radiation path (116) are formed on the detector (item 16, see Figures 1 and 3);

a memory for storing the CSCT data (computer 10 has memory); and

a data processor for performing a filtered back-projection (Col. 5, lines 4-10), the data

processor is adapted to perform the following operations:

determining a wave-vector transfer by using the spectrum (Col. 2, lines 20-23 and

Col. 4, lines 17-38);

determining a reconstruction volume using the wave-vector transfer and data from

a detector element (Col. 5, lines 4-10 to include item 160), a dimension of the

reconstruction volume is determined by the wave-vector transfer (Col. 1, lines 24-29,

Col. 1, lines 31-37 and Col. 4, lines 17-38 and Figures 1-3, momentum transfer

determined for view and fan angle which is then reconstructed into voxels) and

determining a reconstruction volume using data from the detector (Col. 5, lines 4-

10, reconstruction of attenuation values of primary beam).

Harding ('067) fails to explicitly disclose the detector element positioned along the

primary radiation path is a scintillator detector element.

Harding ('067) further fails to disclose the wave-vector transfer represents curved lines in

the reconstruction volume; and

performing a filtered back-projection along the curved lines in the reconstruction volume.

Harding et al. ('469) teaches the detector element positioned along the primary radiation

path is a scintillator detector element (Col. 3, lines 12-35, The signal measured is proportional to

the energy of the X-ray quantum concerned and the detectors may be scintillators. Hence, an

energy resolving detector elements taught for both primary detector element and offset detector

elements).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the device of Harding ('067) to include the scintillator of Harding et al.

('469), since the Examiner finds that the prior art reference (i.e., Harding ('067)) contains a

device upon which the claimed invention can be seen as an improvement and which differs from

the prior art by a known technique (i.e. Harding et al., energy resolving by scintillator detectors),

thus the Examiner finds that one of ordinary skill in the art would have recognized that applying

the known technique would have yielded predictable results and resulted in an improved device.

Van Stevendaal et al. teaches the wave-vector transfer represents curved lines in the

reconstruction volume (Page 2468, Col. 2, lines 26-28 and Figures 3 and 4) and

performing a filtered back-projection along the curved lines in the reconstruction volume

(Title and Abstract, lines 4-6).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to include in the device of Harding ('067) as modified above the curved filtered back-

projection of Van Stevendaal et al., since a person would have been motivated to make such a

modification to improve imaging by reducing computational time and by performing sub-field-

of-view reconstruction (Abstract, lines 8-11) as taught by Van Stevendaal et al.

With respect to claim 5, Harding ('067) discloses a Coherent Scatter Computer

Tomography (CSCT) (Title and Abstract) apparatus (Figure 1) for examination of an object of

interest (Col. 2, lines 65-66, item 13), the CSCT apparatus comprising:

a detector unit (16 to include elements 160 and 161) with an x-ray source (s);

a first detector which is a scatter radiation detector (16 to include elements 161);

a second detector (16 to include elements 160), the detector unit is rotatable (Figure 1)

around a rotational axis (14) extending through an examination area (13) for receiving the object

of interest, the x-ray source generates a fan-shaped x-ray beam (41) adapted to penetrate the

object of interest in the examination area in a slice plane (Figure 1), the first detector which is a

scatter radiation detector is arranged at the detector unit opposite to the x-ray source (Figure 1)

with an offset with respect to the slice plane in a direction parallel to the rotational axis (Figures

1 and 3) and the second detector is arranged at the detector unit opposite to the x-ray source in

the slice plane (Figures 1 and 3, elements 160 of detector unit 16), the first detector which is a

scatter radiation detector includes a first detector line with a plurality of first detector elements

(161) arranged in a line (Figure 1), the plurality of first detector elements are energy-resolving

detector elements (Col. 3, lines 17-38), both the first detector which is a scatter radiation detector

(16 to include elements 161) and the second detector elements arranged in the detector unit

opposite the x-ray source in the slice plane (16 to include elements 160) are formed on a single

detector device (16 to include elements 160 and 161, Figures 1 and 3).

> a data processor (10) configured to perform a filtered back-projection (Col. 5, lines 4-10)

on readouts of the detector, the data processor is adapted to perform the following operations:

> > determining a wave-vector transfer by using the first readouts (Col. 2, lines 20-23

> > and Col. 4, lines 17-38);

> > determining a reconstruction volume using the wave-vector transfer (Col. 1, lines

> > 24-29, Col. 1, lines 31-37 and Col. 4, lines 17-38 and Figures 1-3, momentum transfer

> > determined for view and fan angles which is then reconstructed into voxels) and

> > determining a reconstruction volume using data from the second detector (Col. 5,

> > lines 4-10, reconstruction of attenuation values of primary beam).

Harding ('067) fails to explicitly disclose second detector elements arranged in the

detector unit opposite the x-ray source is a scintillator detector.

Harding ('067) further fails to disclose for performing a filtered back-projection on first

readouts of the first detector which is a scatter radiation detector,

> the wave-vector transfer represents curved lines in the reconstruction volume; and

> performing a filtered back-projection along the curved lines in the reconstruction volume.

Harding et al. ('469) teaches second detector elements arranged in the detector unit

opposite the x-ray source is a scintillator detector (Col. 3, lines 12-35, The signal measured is

proportional to the energy of the X-ray quantum concerned and the detectors may be

scintillators. Hence, an energy resolving detector elements taught for both primary detector

element and scatter detector elements).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the device of Harding ('067) to include the scintillator of Harding et al.

('469), since the Examiner finds that the prior art reference (i.e., Harding ('067)) contains a

device upon which the claimed invention can be seen as an improvement and which differs from

the prior art by a known technique (i.e. Harding et al., energy resolving by scintillator detectors),

thus the Examiner finds that one of ordinary skill in the art would have recognized that applying

the known technique would have yielded predictable results and resulted in an improved device.

Van Stevendaal et al. teaches for performing a filtered back-projection on first readouts

of the first detector which is a scatter radiation detector (Abstract),

the wave-vector transfer represents curved lines in the reconstruction volume (Page 2468,

Col. 2, lines 26-28 and Figures 3 and 4) and

performing a filtered back-projection along the curved lines in the reconstruction volume

(Title and Abstract, lines 4-6).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to include in the device of Harding ('067) as modified above the curved filtered back-

projection of Van Stevendaal et al., since a person would have been motivated to make such a

modification to improve imaging by reducing computational time and by performing sub-field-of-view reconstruction (Abstract, lines 8-11) as taught by Van Stevendaal et al.

With respect to claim 8, Harding ('067) discloses a method of performing a reconstruction of Coherent Scatter Computer Tomography (CSCT) data (Abstract and Title), the CSCT data comprises a spectrum (Col. 1, lines 27-38, Col. 4, lines 17-24 and Col. 4, lines 30-38) acquired by means of an energy resolving (Col. 4, lines 35-38) detector element (161), the method comprising the acts of:

forming both a first detector element which is an energy resolving detector (Col. 4, lines 35-38) element (161) and a second detector element (160) on a single detector device (item 16, Figures 1 and 3. The act of forming must necessarily have occurred when detector formed to form device 16 with elements 160 and 161);

determining a wave-vector transfer by using a spectrum determined using the first detector element which is energy resolving detector positioned offset from a primary radiation path (Col. 2, lines 20-23 and Col. 4, lines 17-38 and Figures 1 and 3);

determining a reconstruction volume using the wave-vector transfer (Col. 4, lines 5-61 and Figure 4) and data from the second detector element (160) positioned along the primary radiation path (Col. 5, lines 4-10, reconstruction of attenuation values of primary beam);

rendering the reconstruction volume, a dimension of reconstructed volume is determined by the wave-vector transfer (Col. 1, lines 24-29, Col. 1, lines 31-37, Col. 4, lines 17-38 and Col. 5, lines 4-10 and Figures 1-3, momentum transfer determined for view and fan angle which is then reconstructed into voxels).

Harding ('067) fails to explicitly disclose the second detector element is a scintillator detector element.

Harding ('067) further fails to disclose the wave-vector transfer represents curved lines in the reconstruction volume; and

performing a filtered back-projection along the curved lines in the reconstruction volume.

Harding et al. ('469) teaches the second detector element is a scintillator detector element (Col. 3, lines 12-35, The signal measured is proportional to the energy of the X-ray quantum concerned and the detectors may be scintillators. Hence, an energy resolving detector elements taught for both first (which detect scattered x-rays) detector element and second (which detect primary/transmitted x-rays) detector elements).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Harding ('067) to include the scintillator of Harding et al. ('469), since the Examiner finds that the prior art reference (i.e., Harding ('067)) contains a device upon which the claimed invention can be seen as an improvement and which differs from the prior art by a known technique (i.e. Harding et al., energy resolving by scintillator detectors), thus the Examiner finds that one of ordinary skill in the art would have recognized that applying the known technique would have yielded predictable results and resulted in an improved device.

Van Stevendaal et al. teaches the wave-vector transfer represents curved lines in the reconstruction volume (Page 2468, Col. 2, lines 26-28 and Figures 3 and 4) and

performing a filtered back-projection along the curved lines in the reconstruction volume (Title and Abstract, lines 4-6).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to include in the device of Harding ('067) as modified above the curved filtered back-

projection of Van Stevendaal et al., since a person would have been motivated to make such a

modification to improve imaging by reducing computational time and by performing sub-field-

of-view reconstruction (Abstract, lines 8-11) as taught by Van Stevendaal et al.

With respect to claim 2, Harding further discloses the spectrum is acquired during a

circular acquisition where a source of radiation is rotated around an object of interest in a

rotation plane (Col. 3, lines 65-67 and Figure 1).

With respect to claim 3, Harding further discloses the reconstruction volume is

furthermore determined by two linear independent vectors of the rotation plane (to include view

angle and fan angle of scattering points).

With respect to claim 4, Harding as modified above suggests the device as recited above.

Harding further discloses the energy resolving detector is arranged such that it measures a scatter

radiation scattered by an object of interest (Col. 4, lines 1-4 and Figures 1 and 3); and

the CSCT data further comprises information with respect to a primary radiation

attenuated by the object of interest (Col. 4, lines 1-4).

Harding fails to explicitly disclose a preprocessing is performed to correct for an

attenuation contribution.

Van Stevendaal et al. further teaches a preprocessing is performed to correct for an

attenuation contribution (Page 2468, Section II B. Preprocessing).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to include in the device of Harding as modified above the attenuation correction of

Van Stevendaal et al., since a person would have been motivated to make such a modification to

improve image quality by correcting for the intensity residual primary beam at a scattering point

to be reconstructed that is essential for applying the reconstruction algorithm (Page 2466, Col. 1,

lines 10-12) as taught by Van Stevendaal et al.

With respect to claim 6, Harding ('067) as modified above suggests the apparatus as

recited above.

Harding ('067) further discloses the first detector which is a scatter radiation detector

(elements 161) is arranged at the detector unit opposite to the x-ray source parallel to the slice

plane and out of the slice plane with such an offset along the rotational axis such that the first

detector which is a scatter radiation detector is arranged for receiving a scatter radiation scattered

from the object of interest (Figures 1 and 3), the second detector (elements 160) is configured to

receive a primary radiation attenuated by the object of interest (Col. 4, lines 1-4 and Figure 1),

and a data processor (10) necessarily configured to perform steps.

Harding et al. ('469) further teaches the second detector is a scintillator detector (Col. 3,

lines 12-35).

Harding ('067) fails to explicitly teach configured to perform a preprocessing to correct

for an attenuation contribution by using second readouts of the primary radiation detector.

Van Stevendaal et al. teaches performs a preprocessing to correct for an attenuation contribution by using second readouts of the primary radiation detector (Page 2468, Section II B. Preprocessing).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the apparatus of Harding ('067) as modified above the attenuation correction of Van Stevendaal et al., since a person would have been motivated to make such a modification to improve image quality by correcting for the intensity residual primary beam at a scattering point to be reconstructed that is essential for applying the reconstruction algorithm (Page 2466, Col. 1, lines 10-12) as taught by Van Stevendaal et al.

With respect to claim 7, Harding ('067) further discloses the reconstruction volume is furthermore determined by two linear independent vectors of the rotation plane and a wave-vector transfer dimension (Col. 1, lines 24-29, Col. 1, lines 31-37 and Col. 4, lines 17-38 and Figures 1-3, momentum transfer determined for view and fan angle).

With respect to claim 9, Harding ('067) further discloses the spectrum is acquired during a circular acquisition where a source of radiation is rotated around an object of interest in a rotation plane (Col. 3, lines 65-67 and Figure 1).

With respect to claim 10, Harding ('067) further discloses the reconstruction volume is furthermore determined by two linear independent vectors of the rotation plane (to include view angle and fan angle of scattering points).

With respect to claim 11, Harding ('067) as modified above suggests the method as recited above. Harding ('067) further discloses the energy resolving detector is arranged such that it measures a scatter radiation scattered by an object of interest (Figures 1 and 3), the CSCT data further comprises information with respect to a primary radiation attenuated by the object of interest detected by the detector (Col. 4, lines 1-4).

Harding et al. ('469) teaches a scintillator (Col. 3, lines 12-35).

Harding ('067) fails to explicitly disclose a preprocessing is performed to correct for an attenuation contribution.

Van Stevendaal et al. teaches a preprocessing is performed to correct for an attenuation contribution (Page 2468, Section II B. Preprocessing).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the method of Harding ('067) as modified above the attenuation correction of Van Stevendaal et al., since a person would have been motivated to make such a modification to improve image quality by correcting for the intensity residual primary beam at a scattering point to be reconstructed that is essential for applying the reconstruction algorithm (Page 2466, Col. 1, lines 10-12) as taught by Van Stevendaal et al.

With respect to claim 12, Harding ('067) further discloses the acts of:

energizing an x-ray source (S) such that it generates a fan-shaped x-ray beam (41) which penetrates the object of interest in an examination area in a slice plane (Figures 1 and 3);

performing an integral energy measurement of a scatter radiation by means of the energy

resolving detector (Col. 4, lines 34-38, sum of measurements of each energy measured is an

integral energy measurement) with a first detector line with a plurality of first energy resolving

detector elements arranged in a line;

reading-out the energy measurement from the energy resolving detector (Col. 3, lines 47-

53); and

rotating the x-ray source and the energy resolving detector around a rotational axis

extending through an examination area containing the object of interest (Col. 3, lines 65-67 and

Figure 1).

With respect to claim 14, Harding ('067) further discloses a plurality of energy resolving

detector elements (Figure 1), the scintillator element is sandwiched between the plurality of

energy resolving detector elements (Figures 1 and 3).

With respect to claim 15, Harding ('067) further discloses a plurality of scatter radiation

detector elements (Figure 1), the scintillator detector is sandwiched between the plurality of

scatter radiation detector elements (Figures 1 and 3).

With respect to claim 16, Harding ('067) further discloses an act of forming the

scintillator element sandwiched between the plurality of energy resolving detector elements

(Figures 1 and 3, The act of forming must necessarily have occurred when detector formed to

form device 16 with elements 160 and 161).

4.   Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harding

('067) in view of Harding et al. ('469), Van Stevendaal et al. and Hsieh (6,529,575).

With respect to claim 13, Harding ('067) discloses a data processor (10) for performing a

reconstruction of coherent-scatter computer tomography (CSCT) data (Title and Abstract), the

CSCT data comprises a spectrum (Col. 1, lines 27-38, Col. 4, lines 17-24 and Col. 4, lines 30-38)

acquired by means of a first detector element which is an energy resolving (Col. 4, lines 35-38)

detector element positioned offset from a primary radiation path (item 161, Figures 1 and 3), the

data processor to perform the following operation:

determining a wave-vector transfer by using the spectrum Col. 2, lines 20-23 and Col. 4,

lines 17-38);

determining a reconstruction volume using the wave-vector transfer and data from a

second detector (elements 160 which are detector elements of detector 16) formed as a single

detector device (16) along with the energy resolving detector element (16 to include elements

160 and 161), the second detector positioned along the primary radiation path (Figure 1-3), a

dimension of the reconstruction volume is determined by the wave-vector transfer (Col. 1, lines

24-29, Col. 1, lines 31-37 and Col. 4, lines 17-38 and Figures 1-3, momentum transfer

determined for view and fan angle which is then reconstructed into voxels);

determining a reconstruction volume using data from a detector (160) positioned along

the primary radiation path (Col. 5, lines 4-10, reconstruction of attenuation values of primary

beam);

rendering the reconstruction volume (Col. 5, lines 4-10); and

outputting the reconstruction volume (via 11).

Harding ('067) fails to explicitly disclose the second detector is a scintillator detector and a computer readable medium encoded with a computer program when implemented on the data processor, the program instructs the data processor to perform steps.

Harding ('067) further fails to disclose the wave-vector transfer represents curved lines in the reconstruction volume; and

performing a filtered back-projection along the curved lines in the reconstruction volume.

Harding et al. ('469) teaches the second detector is a scintillator detector (Col. 3, lines 12-35, The signal measured is proportional to the energy of the X-ray quantum concerned and the detectors may be scintillators. Hence, an energy resolving detector elements taught for both first (which detect scattered x-rays) detector element and second (which detect primary/transmitted x-rays) detector elements).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the configuration of Harding ('067) to include the scintillator of Harding et al. ('469), since the Examiner finds that the prior art reference (i.e., Harding ('067)) contains a device upon which the claimed invention can be seen as an improvement and which differs from the prior art by a known technique (i.e. Harding et al., energy resolving by scintillator detectors), thus the Examiner finds that one of ordinary skill in the art would have recognized that applying the known technique would have yielded predictable results and resulted in an improved device.

Van Stevendaal et al. teaches the wave-vector transfer represents curved lines in the reconstruction volume (Page 2468, Col. 2, lines 26-28 and Figures 3 and 4) and

performing a filtered back-projection along the curved lines in the reconstruction volume (Title and Abstract, lines 4-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the configuration of Harding ('067) as modified above the curved filtered back-projection of Van Stevendaal et al., since a person would have been motivated to make such a modification to improve imaging by reducing computational time and by performing sub-field-of-view reconstruction (Abstract, lines 8-11) as taught by Van Stevendaal et al.

Hsieh teaches a computer readable medium encoded with a computer program when implemented on the data processor, the program instructs the data processor to perform steps (Col. 8, line 57 - Col. 9, line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the configuration of Harding ('067) as modified above the computer readable medium of Hsieh, since person would have been motivated to make such a modification to more easily update existing systems to implement the invention (Col. 8, line 66 - Col. 9, line 1) as taught by Hsieh.

With respect to claim 17, Harding ('067) further discloses a plurality of energy resolving detector elements (Figures 1 and 3) and utilizing the scintillator element sandwiched between the plurality of energy resolving detector elements (Figures 1 and 3).

Response to Arguments

5.   Applicant's arguments with respect to at least claims 1, 5, 8 and 13 have been considered but are moot in view of the new ground(s) of rejection.

6.   Applicant's arguments filed 4 May 2009 have been fully considered but they are not persuasive.

With respect to the 35 USC 101 rejection of at least claim 13, the Applicant argues that a claim drawn to a computer program is directed to statutory subject matter. The Examiner disagrees. As noted in the rejection above computer programs directed to nonstatutory functional descriptive material (See MPEP 2106.01) and the computer readable medium to which the computer readable medium is to be stored is considered to be an intended use of the computer program. The claim should be directed to the computer readable medium and not the computer program as noted in the rejection above. The claim, therefore, is directed to non-statutory subject matter. The Applicant's arguments, therefore, are not persuasive and the 35 USC 101 rejection of at least claim 13 remains.

With respect to at least claims 1, 5, 8 and 13, the Applicant appears to argue that Harding et al. ('469) fails to teach that the scintillation detectors cited in the rejection of record are energy resolving. The Examiner disagrees. Harding et al. ('469) clearly states that detectors "D0, D1 … DN are configured in such a way that the amplitude of the electrical pluses, which are generated during the ***detection of an X-ray quantum, is proportional to the energy of the X-ray quantum***

concerned" (Col. 3, lines 25-29, *i.e. energy resolving*) and that *"these detectors may, for instance, be* semiconductor detectors, e.g. germanium detectors or *scintillation detectors"*. Therefore, Harding et al. ('469) clearly does teach that the *energy resolving detectors may be utilized for both the first detector elements that detect the scattered x-rays and the second detector elements that detect the primary/transmitted x-rays and that both of these energy resolving detector elements may be energy resolving scintillator detectors elements.* Therefore, Applicant's arguments are not persuasive. Harding et al. ('469) still applies as prior art and the rejection at least claims 1, 5, 8 and 13 is maintained.

With respect to at least claims 1, 5, 8 and 13, the Applicant alternatively appears to argue that the first detector elements that detect the scattered x-rays and are energy resolving are not scintillator detectors and that scintillator detectors are only utilized for the second detector elements that detect the primary/transmitted x-rays. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "scintillator detectors are utilized *only* for the second detector elements that detect the primary/transmitted x-rays") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. Therefore, the Applicant's arguments are not persuasive and the rejection at least claims 1, 5, 8 and 13 is maintained.

Conclusion

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to JOHN M. CORBETT whose telephone number is (571)272-8284.

The examiner can normally be reached on M-F 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. M. C./
Examiner, Art Unit 2882

/Edward J Glick/
Supervisory Patent Examiner, Art Unit 2882